

What is claimed is:

1. An information providing system comprising:

an information providing server, which stores display information and bandwidth information requested for transmission of the display information, and
5 transmits the display information and the bandwidth information in response to the request of the user;

an information transmission server, which performs bandwidth negotiation and bandwidth reservation based on information on available bandwidth on the network using the bandwidth information transmitted from the information providing server and requests buffering for bandwidth that cannot be reserved; and

a terminal which receives the display information from the information providing server in response to the buffering request received from the information transmission server, buffers the display information, and displays the display information transmitted from the information providing server over the network together with the buffered display information after call setup.

2. An information providing device comprising:

an information generation unit which generates display information and bandwidth information requested for transmission of the display information;

20 an information extraction unit which extracts display information to be provided corresponding to a service requested by a user and bandwidth information requested for the service request;

bandwidth information transmission unit which transmits the requested bandwidth information over a network and receives information on the results of
25 bandwidth reservation; and

a display information transmission unit which transmits the display information over the network based on the information on the results of bandwidth reservation.

3. The information providing device of claim 2 further comprising a

30 bandwidth negotiation unit which performs bandwidth reservation based on the requested bandwidth information and the information on available bandwidth over the network and requests a terminal to perform buffering if the bandwidth reservation is not successful.

4. An information transmission device comprising:

a bandwidth information transmission unit which receives requested bandwidth information necessary for display information to be transmitted over a network and transmits information on the results of bandwidth negotiation with respect to the requested bandwidth information;

a bandwidth negotiation unit which determines whether or not bandwidth can be reserved by comparing the requested bandwidth information with information on available bandwidth over the network and requests a terminal to perform data buffering if there is bandwidth that cannot be reserved over the network;

a bandwidth reservation unit which, if possible, reserves bandwidth requested by the requested bandwidth information and, if not possible, reserves the bandwidth requested by the requested bandwidth information except for bandwidth requested to be buffered in the terminal; and

a display information transmission unit which transmits display information to be buffered in the terminal and transmits display information to the terminal with the bandwidth reserved by the bandwidth reservation unit after call setup.

5. A terminal, which receives information over a network in response to the request of a user, the terminal comprising:

a bandwidth negotiation unit which determines whether or not data requested to be buffered can be buffered if bandwidth reservation is not successful over the network in response to the request of the user and transmits the result of the determination;

a display information transmission unit which receives and stores display information necessary for the requested buffering, and receives and stores display information necessary for providing a service after call setup; and

an output unit which extracts and outputs the stored display information.

6. A method of providing information comprising:

receiving a request for providing an information service from a user's terminal; extracting display information to be provided to a user corresponding to the service request and bandwidth information requested for transmission of the display

information;

determining whether or not it is possible to reserve bandwidth by comparing the requested bandwidth information with information on available bandwidth over a network;

5 providing the service by transmitting the display information to the user's terminal after call setup, if bandwidth reservation is successful;

requesting the user's terminal to perform data buffering and transmitting a part of the display information to the user's terminal so as to be buffered, if it is determined that bandwidth that cannot be reserved exists; and

providing the service by setting up a call with bandwidth that can be reserved over the network after the buffering is completed and transmitting the rest of the display information to the user's terminal.

7. A method of providing information comprising:

(a) receiving content data for providing a service;

(b) generating and storing display information and bandwidth information corresponding to the amount of display information requested at each time span;

(c) extracting bandwidth information necessary for the service in response to a service request and requesting a network to negotiate bandwidth; and

20 (d) receiving information on the results of the bandwidth negotiation from the network and transmitting display information corresponding to the service using the reserved bandwidth over the network.

8. The method of claim 7, wherein steps (a) and (b) are performed in an offline state so that the display information and the bandwidth information can be stored in a database, and steps (c) and (d) are performed in an online state in response to the request of a user.

9. A recording medium, which can be read out by a computer, in which a program requested to perform any of the methods of claims 6 through 8 are recorded.